

Remarks

Claims 1-14 were pending in the subject application. By this Amendment, the applicants have amended claims 1 and 8, and cancelled claims 7 and 14. Support for the amendments to the claims can be found throughout the subject specification and in the claims as originally filed (see for example, page 3, lines 1-10 and original claims 7 and 14). Entry and consideration of the amendments presented herein is respectfully requested. Accordingly, claims 1-6 and 8-13 are currently before the Examiner. Favorable consideration of the pending claims is respectfully requested.

The amendments to the claims have been made in an effort to lend greater clarity to the claimed subject matter and to expedite prosecution. These amendments should not be taken to indicate the applicants' agreement with, or acquiescence to, the rejections of record. Favorable consideration of the claims now presented, in view of the remarks and amendments set forth herein, is earnestly solicited.

Initially, the subject specification has been objected to due to informalities. The applicants thank the Examiner for his careful review of the specification. By this Amendment, the applicants have amended the subject specification to include a "Brief Description of the Figures Section." Accordingly, withdrawal of the objection to the specification is respectfully requested.

Claims 1, 7, 8 and 12-14 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 9-12, 14, 16, 19, 20, 23, 25-27, 31-33 and 35 of copending Application No. 10/520,323. Attached herewith is a Terminal Disclaimer with respect to Application No. 10/520,323, thus rendering moot this ground for rejection.

Claims 1, 4, 5, 8 and 12 have been rejected under 35 U.S.C. §102(b) as being anticipated by Jeffrey *et al.* (WO 99/29831). The applicants traverse this ground for rejection because the cited reference does not disclose each and every element of the method and device as claimed by the current applicants.

It is a basic premise of patent law that, in order to anticipate, a single prior art reference must disclose within its four corners, each and every element of the claimed invention. In *Lindemann v. American Hoist and Derrick Co.*, 221 USPQ 481 (Fed. Cir. 1984), the court stated:

Anticipation requires the presence in a single prior art reference, disclosure of each and every element of the claimed invention, arranged as in the claim. *Connell v. Sears Roebuck and Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983); *SSIH Equip. S.A. v. USITC*, 718 F.2d 365, 216 USPQ 678 (Fed. Cir. 1983). In deciding the issue of anticipation, the [examiner] must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference. *SSIH, supra*; *Kalman [v. Kimberly-Clarke]*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983)] (emphasis added). 221 USPQ at 485.

Claims 1 and 8, as amended, require that the sensor of the method and device of the present invention be a holographic sensor. The Jeffrey reference, on the other hand, contains no disclosure of a holographic sensor. It is noted that previous claims 7 and 14 were not subject to this rejection under §102, and the substance of these claims has now been incorporated into amended claims 1 and 8, respectively.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §102(b) based on the Jeffrey *et al.* reference is respectfully requested.

Claims 1, 4 and 8 have been rejected under 35 U.S.C. §102(b) as being anticipated by Walt *et al.* (U.S. Patent No. 6,377,721). The applicants traverse this ground for rejection because the cited reference does not disclose each and every element of the method and device as claimed by the current applicants.

As discussed above, claims 1 and 8, as amended, require that the sensor of the method and device of the subject invention be a holographic sensor. However, there is no teaching by Walt *et al.* of a holographic sensor. Thus, the Walt *et al.* reference does not disclose, within its four corners, each and every element of the claimed invention. Once again, it is noted that previous claims 7 and 14 were not rejected under §102 in the Office Action, and the substance of these claims has been incorporated into amended claims 1 and 8, respectively.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §102(b) based on the Walt *et al.* reference is respectfully requested.

Claims 1, 2, 4-6, 9, and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Jeffrey *et al.* in view of Benjamin *et al.* (U.S. Patent No. 5,491,068). The applicants traverse

this ground for rejection because the cited references, taken either alone or in combination, do not disclose the applicants' unique device or its use.

Each of the rejected claims now requires that the sensor of the subject invention be a holographic sensor. Neither Jeffrey *et al.* nor Benjamin *et al.* make any mention of such a sensor. Since there is no disclosure whatsoever in the cited references of a holographic sensor, the applicants respectfully submit that, without the benefit of the applicants' own disclosure, a skilled artisan could not have arrived at the claimed invention. The applicants' own disclosure cannot be used to reconstruct the prior art for a rejection under 35 U.S.C. §103, as was specifically recognized by the CCPA in *In re Spinnoble*, 56 CCPA 823, 160 USPQ 237, 243 (1969).

Furthermore, the substance of claims 7 and 14, as previously presented, has been incorporated into amended claims 1 and 8, respectively, and claims 7 and 14 were not included in this ground of rejection.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on Jeffrey *et al.* in view of Benjamin *et al.* is respectfully requested.

Claims 1, 2, 4, 6, 8-11, and 13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Walt *et al.* The applicants traverse this ground for rejection because the cited references, taken either alone or in combination, do not disclose the applicants' unique device or its use.

Each of the claims included in this ground for rejection now requires that the sensor of the subject invention be a holographic sensor. On the other hand, as discussed above, the Walt *et al.* reference does not contain any mention of such a sensor. Since there is no disclosure in the cited reference of a holographic sensor, the applicants respectfully submit that, without the benefit of the applicants' own disclosure, a skilled artisan could not have arrived at the claimed invention. As noted above, the applicants' own disclosure cannot be used to reconstruct the prior art for a rejection under 35 U.S.C. §103, as was specifically recognized by the CCPA in *In re Spinnoble, supra*.

Furthermore, the substance of claims 7 and 14, as previously presented, has been incorporated into amended claims 1 and 8, respectively, and claims 7 and 14 were not included in this ground of rejection.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on the Walt *et al.* reference is respectfully requested.

Claims 1-14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Benjamin *et al.* in view of Walt *et al.*, in view of Weimer *et al.* (U.S. Patent No. 6,399,317), and in view of Lowe *et al.* (U.S. Patent No. 5,989,923). The applicants traverse this ground for rejection because the cited references, taken either alone or in combination, do not teach or suggest the claimed invention.

As the Examiner points out in the Office Action, the primary Benjamin *et al.* reference is missing the key elements of the claimed invention of immobilizing the cell in the device and the presence of a sensor in the device. The Examiner also notes that Benjamin *et al.* do not teach a series of chambers or that the sensor is a holographic sensor. Additionally, since no sensor is disclosed, Benjamin *et al.* necessarily omit the elements of detecting a change in optical characteristics of the sensor and the sensor being sensitive to a product of the cell's growth. While the Office Action indicates that each of these missing elements is disclosed in one of the other cited references, the applicants respectfully submit that a skilled artisan would not have turned to all four of these references to arrive at the novel methods and devices of the claimed invention.

It is well established in the patent law that the mere fact that the purported prior art could have been modified or applied in some manner to yield an applicant's invention does not make the modification or application obvious unless "there was an apparent reason to combine the known elements in the fashion claimed" by the applicant. *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_\_ (2007). Furthermore, an applicant's invention is not "proved obvious merely by demonstrating that each of its elements was, independently, known in the (purported) prior art." *Id.*

The Office Action suggests that a skilled artisan would have been motivated to combine all four references because Walt *et al.* teach a biosensor using a light source, Weimer *et al.* teach that cells attached to beads can be washed in a buffer solution, and Lowe *et al.* teach that holographic sensors make good sensors for optically interrogating bacteria. However, no reason is given as to why a skilled artisan would combine these three secondary references with the primary Benjamin reference. While the Office Action states that Benjamin *et al.* teach that bacteria can be trapped on magnetic beads by means of antibodies and that they can subsequently be cultured in liquid media, it

is unclear what reason a skilled artisan would have to turn to a reference for a light source (Walt) or for disclosure that cells can be washed in a buffer solution (Weimer). Additionally, since Benjamin *et al.* do not teach any sensor, connection to the Lowe reference, and a tenuous connection at that, could only be established once a skilled artisan had already turned to Walt *et al.*

The primary Benjamin reference requires “removal of material from the colonies with a colony-lift membrane; and detection of the colony material on the membrane sheet.” (see Abstract of Benjamin *et al.*). The present invention, on the other hand, allows a much simpler system to be used. Additionally, the present invention utilizes antibodies only as one means of capturing analytes in the vicinity of the holographic sensor. An antibody is not required, as is evident from the examples of the subject specification, and the holographic sensor can be used to achieve both capture and detection. A simple choice of readily available polymers, for example, provides good selectivity with respect to a given analyte and also a quick response. The broad applicability of the present invention can be seen in the examples; in particular, Examples 2 and 3 show an effective solution to the problem of spore detection.

Thus, at the time of the subject invention, a skilled artisan would have had no reason to combine the four cited references together to arrive at the claimed invention. Certainly, there is no suggestion of the particular advantageous invention claimed by the current applicants. The applicants respectfully submit that a reason to combine the cited references may be found only with resort to the hindsight provided by the applicants’ own disclosure. It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. The Court of Appeals for the Federal Circuit has stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

Accordingly, the applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on Benjamin *et al.*, in view of Walt *et al.*, in view of Weimer *et al.*, and in view of Lowe *et al.*

In view of the foregoing remarks and the amendments to the claims, the applicants believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

The applicants invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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Attachment: Terminal Disclaimer